

Why Use a
Repeater?
Auto-tuner?

Antenna Tuners

Since the
early days
of radio



Undiscovered Country



Much about
this is still a
mystery

persist

Mystery

to many hams

Reason 1

**Two Categories
of Tuners**

- **In-Shack**
- **Remote**

In-shack Manual Tuner

Only tuner

T'll ever need

In-shack Tuner in Rig



In-shack Auto Tuner



Remote (at the Antenna) Tuners





**I'll
never**

need one

The Original
**"Auto Tuner/
Coupler"**

SGC-239

200 w



ICOM AH-4 Antenna Tuners AH-4

★★★★★ (9) [Review This Product](#)

Antenna Tuner, Automatic, Remote, 120 watts

\$299.99

Remote



MFJ-993BRT

200W \$249.95

**But there is a
reason you may
need one**

Reason 2

**Two Categories
of Antennas**

- **Resonant**

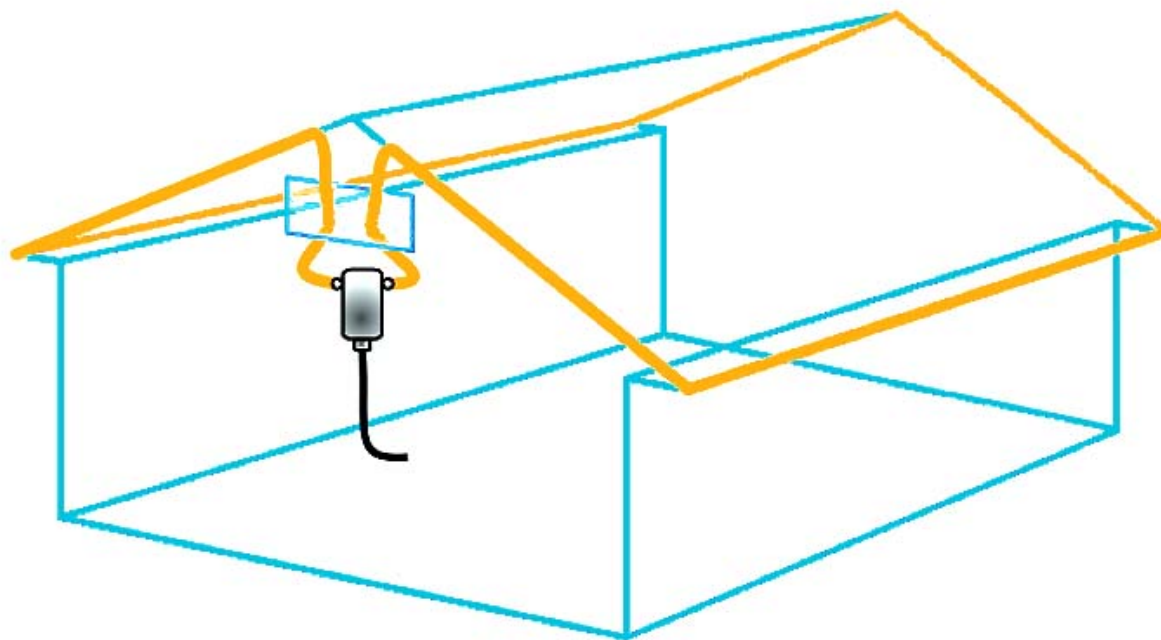
- **Non-
Resonant**

Resonant Antennas

Length (ft)
= $468 / \text{MHz}$



Non-Resonant Antennas



- **Zepp, Windom, G5RV**
- **Long wire**
- **OCF dipole**
- **On a different band**

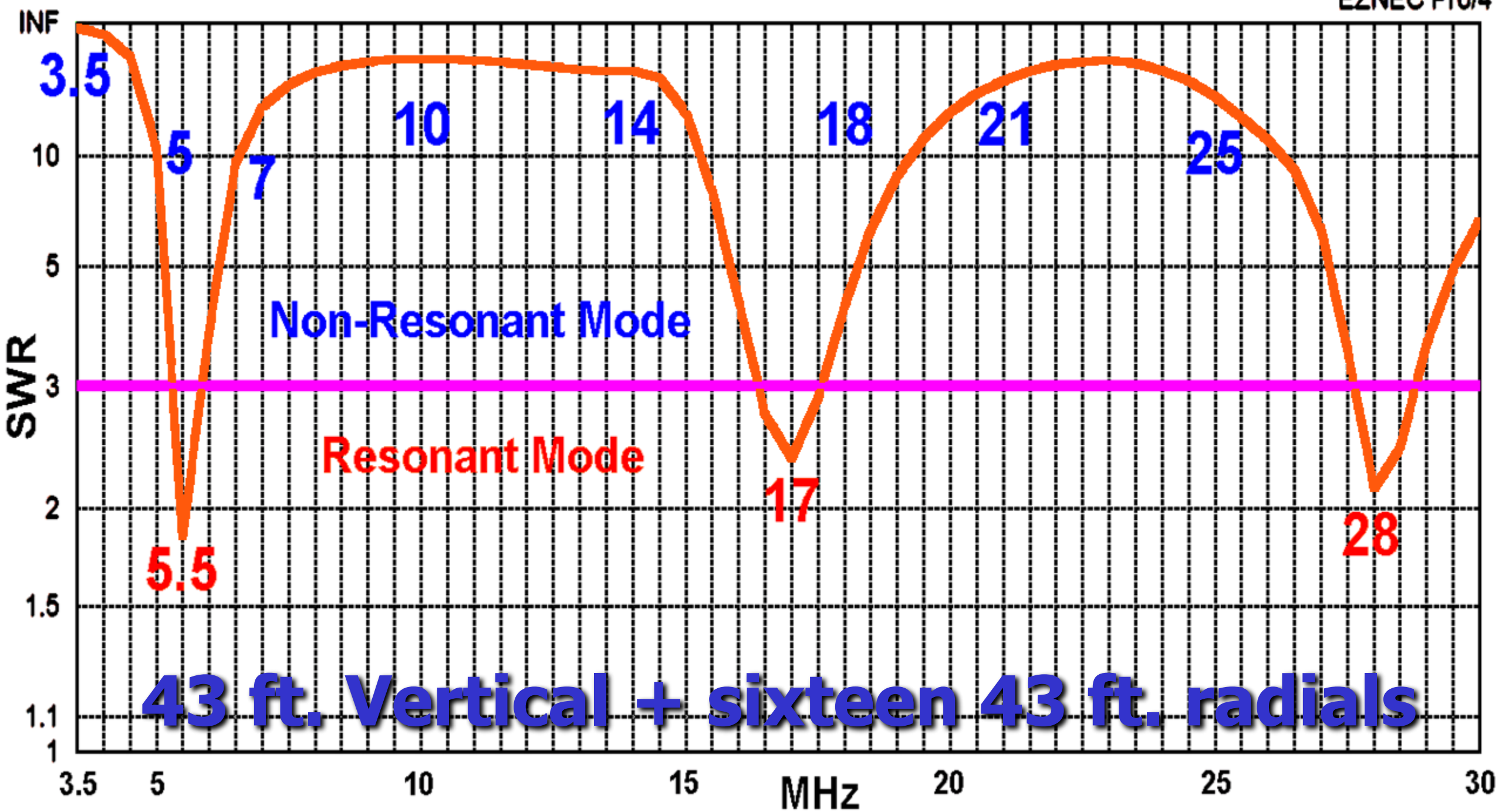


43 ft.

Vertical

With

Radials





OCF

$1/2$ Wave

No-radial

HF

Non



Whip

Antenna

Shakespeare

5300

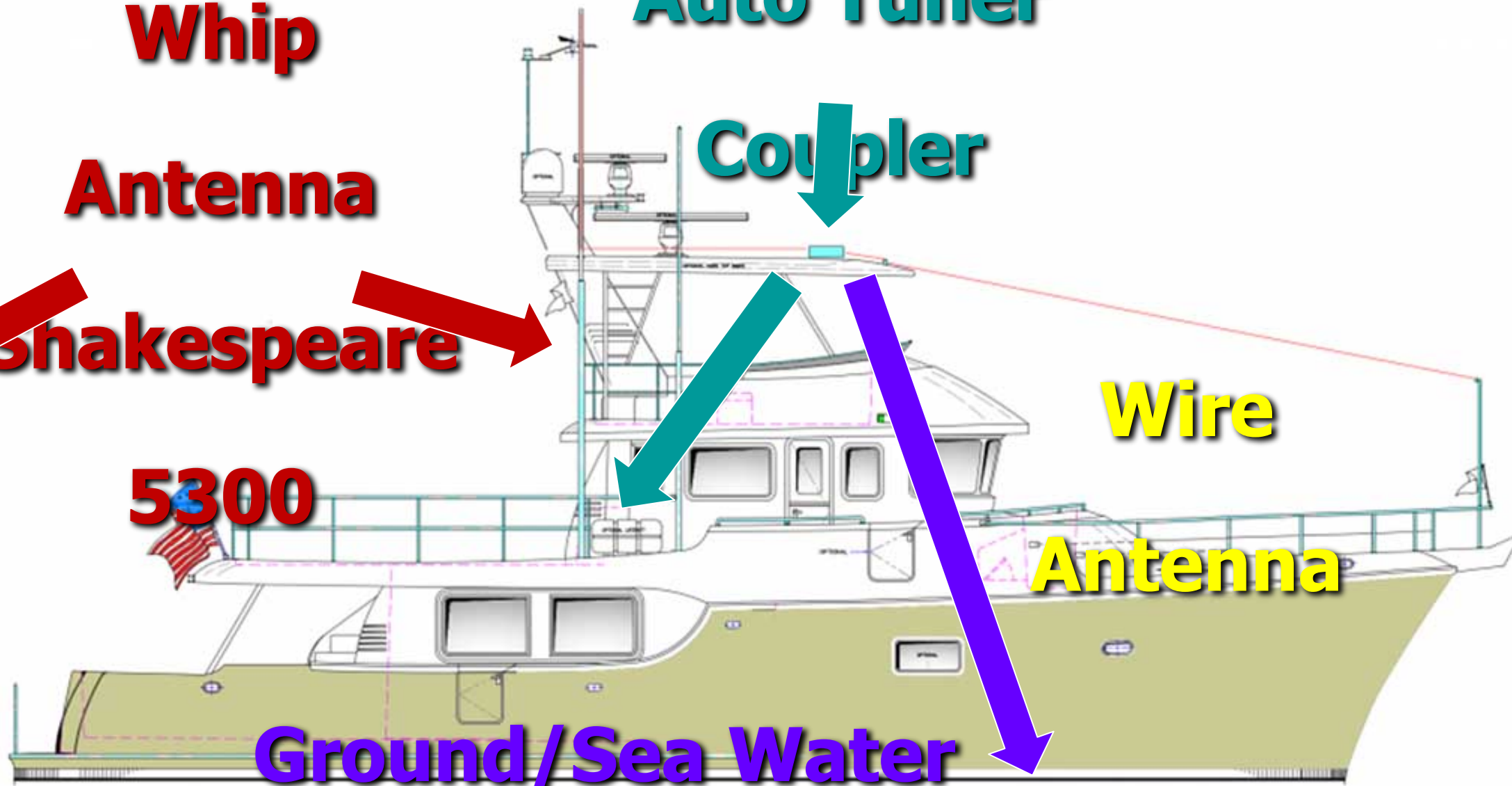
Auto Tuner

Coupler

Wire

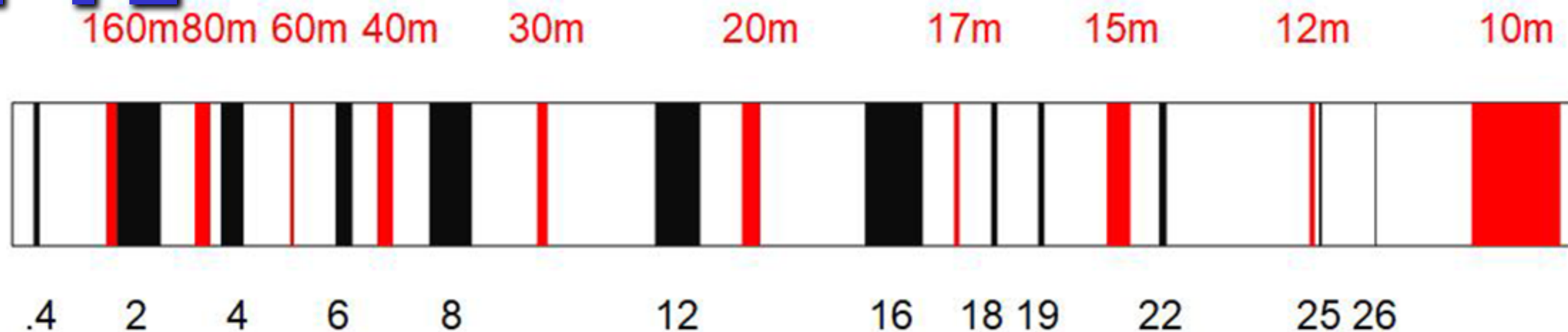
Antenna

Ground/Sea Water

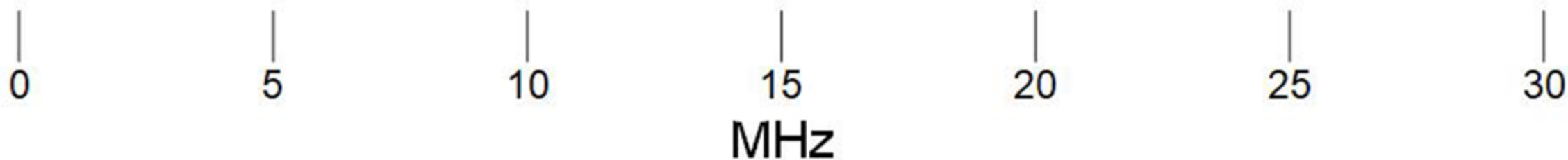


FYI

HAM BANDS

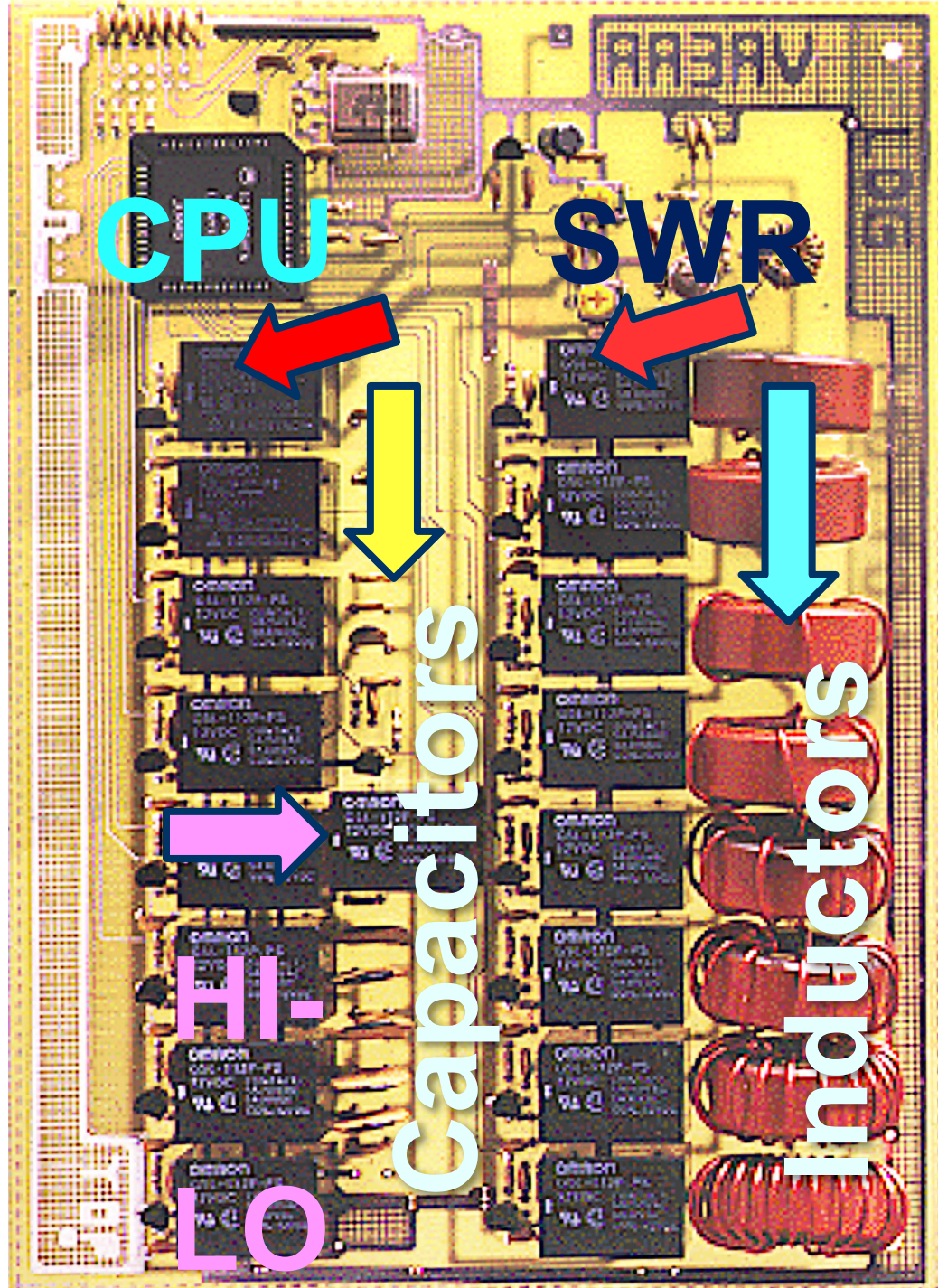


MARINE BANDS



KPH San Francisco 500 kHz

How do Auto Tuners

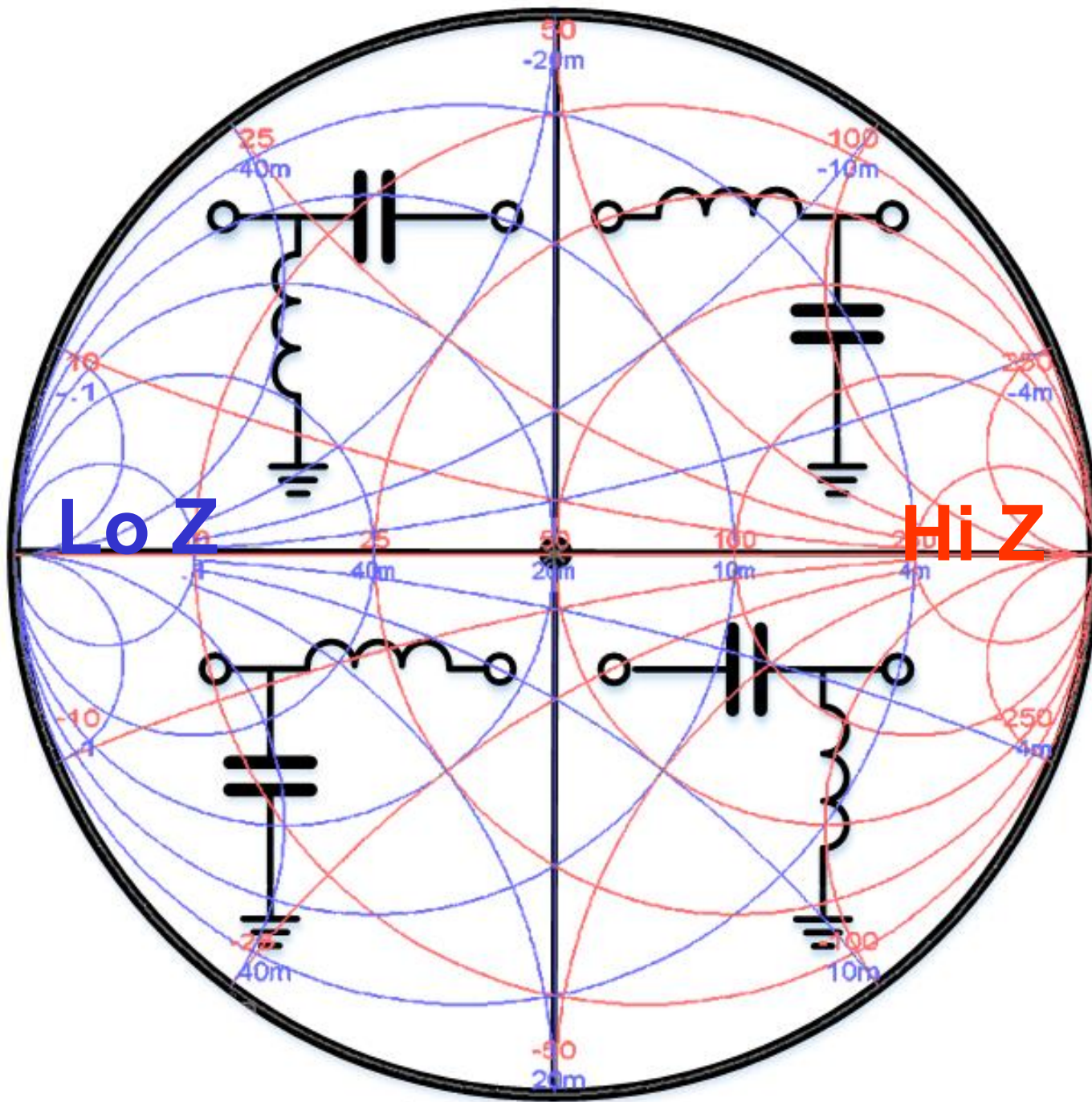


Dwayne L.

Kincaid

WD8OYG

***An Automatic
Antenna Tuner:***



Philip Smith
LEFT HALF

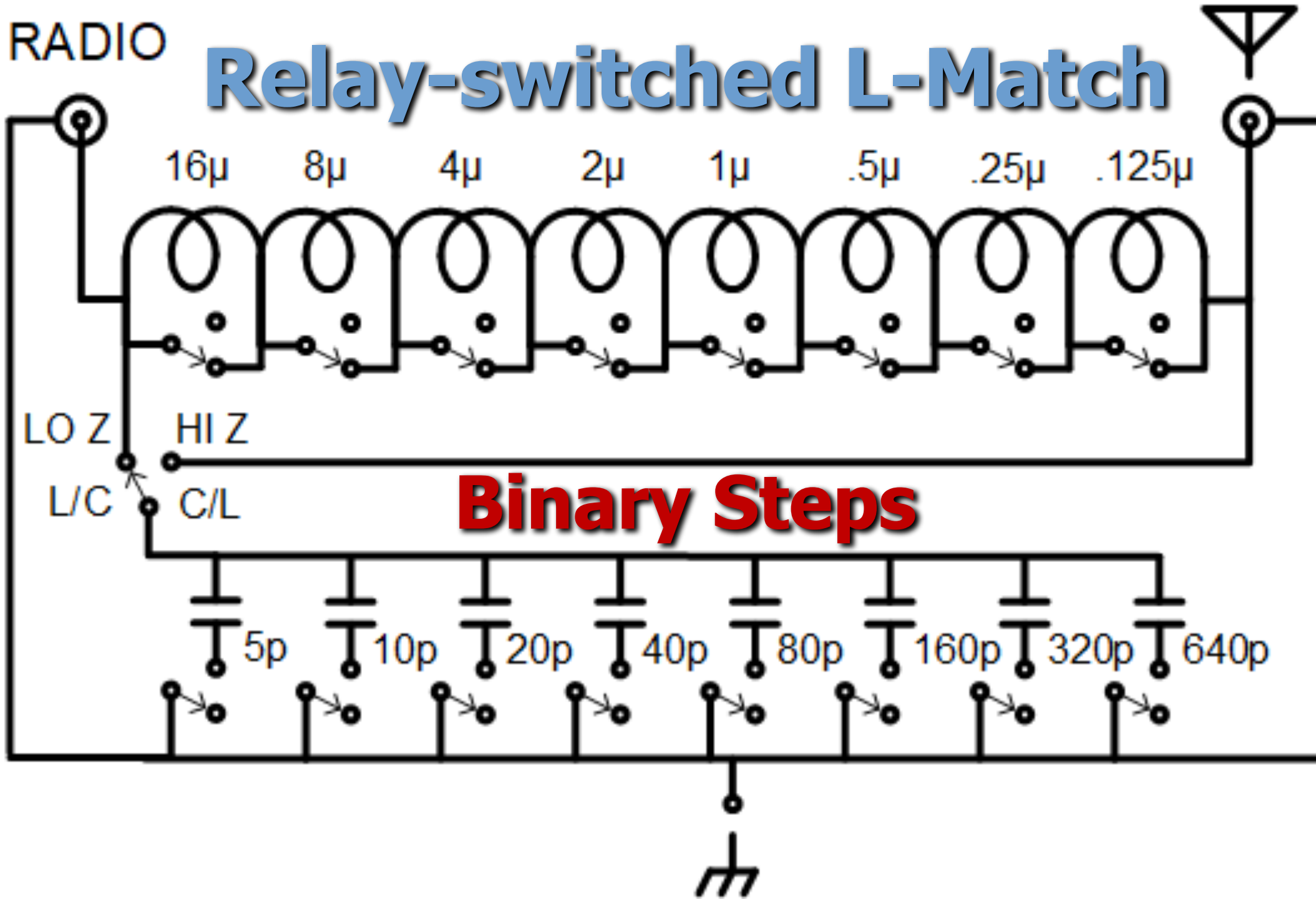
Four Simple
Low

two-element
Impedance

L-match

networks will
RIGHT HALF

Relay-switched L-Match



Fundamental

Reason for

**Source
of RF**

$$E = I \times R(Z)$$

$$50\Omega = E / I$$



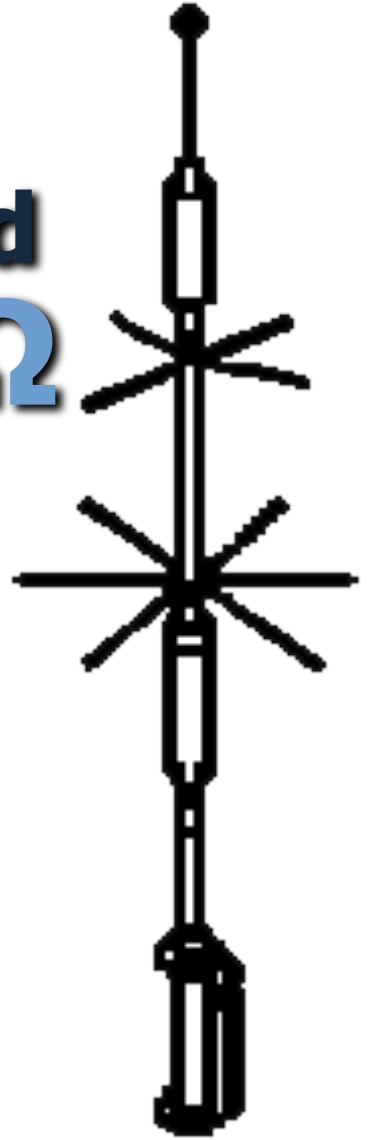
ALL 3

**50Ω for
Full Power
Transfer**

1:1 SWR

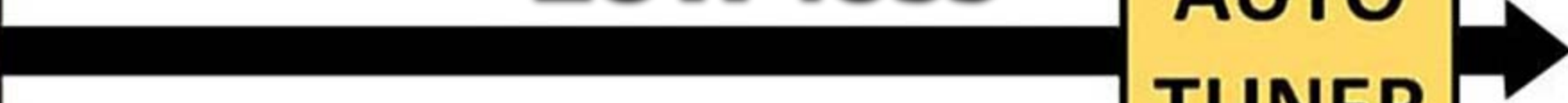
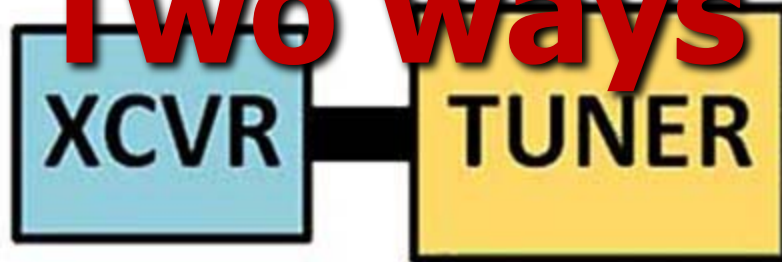
50Ω Z_0 Transmission Line

**Load
50Ω**



Many Hams believe:

Two ways to a 50Ω System



Resonant

Low loss

Many Hams believe:

Two ways to a 50Ω System



Non-Resonant

Handbook Transmission Line Loss

<i>100 ft.</i>	80m	10m	2m	70cm
RG58	0.9	2.6	6.7	13.2
RG8	0.3	1	2.4	4.4
LMR400	0.2	0.7	1.5	2.7
300	0.2	0.6	1.3	2.4
450	0.05	0.15	0.4	0.7

		600Ω	450Ω	300Ω	LMR-400	RG-8	RG-8X	RG-58
	SWR	Percent Power Out, end of 100 ft. of line						
80m	1:1	99	99	96	95	95	89	85
	10:1	96	94	82	79	79	62	55
	100:1	71	63	31	28	28	14	11
	1000:1	20	14	4	4	4	2	1
	SWR	Percent Power Out, end of 100 ft. of line						
10m	1:1	98	97	88	86	86	69	62
	10:1	89	85	60	56	56	34	28
	100:1	45	36	13	12	12	5	4
	1000:1	8	5	2	1	1	1	0
	SWR	Percent Power Out, end of 100 ft. of line						
2m	1:1	95	92	74	71	70	39	34
	10:1	78	70	38	35	34	14	12
	100:1	26	19	6	5	5	2	2
	1000:1	3	2	1	1	1	0	0

CONCLUSION

For **Non-resonant** antennas
the tuning **MUST BE** at the
antenna, not in the shack

Side Bar: HAM MYTH

“Antenna tuners are lossy”

QRZ Forum: Usually, tuner losses are **very small** if the tuner is built using large, high-Q components

Closing

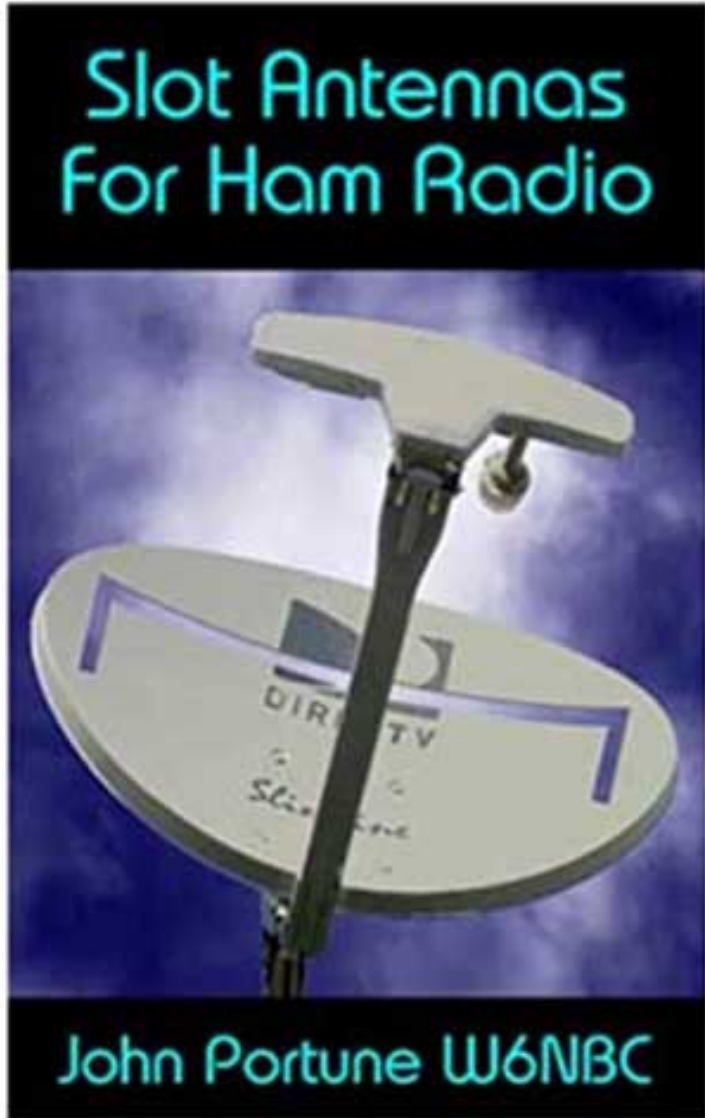
Example

Double Inverted Delta HF Skeleton Slot Antenna



**Set to
Marks
on
Face**





Slot Antennas for Ham Radio: The Forgotten Antenna Kindle Edition

by John Portune W6NBC (Author) | Format: Kindle Edition



16 ratings

Let's pause for these important messages

Slot antennas have been overlooked by ham radio operators since they were introduced in 1938. An aura of mystery surrounds them. Here's how they work and practical homebrew slot antenna projects from HF to UHF.

\$4.95 to buy





**w6nbcmail
@gmail.com**

w6nbc.com

DØGGY



"That's all Folks!"

